WHAT IS CLAIMED IS:

1. A trigger extraction system for obtaining an event trigger for an event occurring in a region of interest, the trigger extraction system comprising:

a processor;

a memory coupled to the processor; and

a trigger extraction program stored in the memory for execution by the processor, the trigger extraction program comprising instructions for accessing ultrasound trigger data obtained from a trigger region, analyzing the trigger data for a trigger characteristic, and storing an event trigger based on the trigger characteristic.

2. The trigger extraction system of claim 1, where the trigger region intersects the region of interest.

3. The trigger extraction system of claim 1, wherein the trigger data comprises Doppler data with a phase component, and wherein the trigger extraction program further comprises instructions for high pass filtering the phase component.

4. The trigger extraction system of claim 1, where the instructions for analyzing the trigger data comprise instructions for averaging the trigger data.

5. The trigger extraction system of claim 4, where the instructions for averaging the trigger data comprise instructions for averaging high pass filtered phase components of the trigger data.

6. The trigger extraction system of claim 4, wherein the instructions for analyzing the trigger data further comprise instructions for interpolating an additional event trigger.

7. The trigger extraction system of claim 1, where the instructions for analyzing comprise instructions for determining a signal extreme from the trigger data.

8. The trigger extraction system of claim 7, where the signal extreme is at least one of a signal maxima and signal minima.

9. The trigger extraction system of claim 8, wherein the instructions for analyzing comprise instructions for determining high pass filtered trigger data, and wherein the signal extreme is at least one of a signal maxima and signal minima of the high pass filtered trigger data.

10. The trigger extraction system of claim 1, wherein the region of interest is a fetal heart.

11. The trigger extraction system of claim 10, wherein the trigger region comprises fetal tissue.

12. A machine readable medium storing instructions that cause an imaging system that obtains images of a region of interest to perform a method comprising the steps of:

accessing ultrasound trigger data obtained from a trigger region;

analyzing the trigger data for a trigger characteristic; and

storing an event trigger based on the trigger characteristic.

13. The machine readable medium of claim 12, wherein the trigger region intersects a region of interest.

14. The machine readable medium of claim 12, where the trigger data comprises Doppler data, and wherein the step of analyzing comprises the step of high pass filtering the Doppler data.

15. The machine readable medium of claim 12, wherein the step of analyzing comprises the step of averaging a high pass filtered component of the trigger data.

16. The machine readable medium of claim 12, wherein the step of analyzing comprises the step of interpolating an additional event trigger.

17. The machine readable medium of claim 12, where the step of analyzing comprises the step of determining a signal extreme from the trigger data.

18. The machine readable medium of claim 12, wherein the step of analyzing comprises the steps of determining high pass filtered trigger data, and determining at least one of a signal maxima and signal minima of the high pass filtered trigger data.

19. The machine readable medium of claim 12, wherein the region of interest is a fetal heart.

20. The machine readable medium of claim 19, wherein the trigger region comprises fetal tissue.

21. An imaging system comprising:

a processor;

a memory coupled to the processor;

a trigger extraction program stored in the memory for execution by the processor, the trigger extraction program comprising instructions for accessing ultrasound trigger data from a trigger region, analyzing the trigger data for a trigger characteristic, and storing an event trigger based on the trigger characteristic; and

an image display program stored in the memory for execution by the processor, the image display program comprising instructions for accessing the event trigger and for displaying at least one image in a sequence of images in synchronism with the event trigger.

22. The imaging system of claim 21, wherein the sequence of images is a looping sequence of images.

23. The imaging system of claim 21, wherein the sequence of images is a sequences of fetal heart images.

24. The imaging system of claim 23, wherein the trigger region comprises fetal tissue.

25. The imaging system of claim 21, wherein the image display program comprises instructions for accessing a plurality of event triggers and for displaying a plurality of images in a sequence of images in synchronism with the event triggers.

26. The imaging system of claim 21, wherein the at least one image is a three-dimensional image.

27. The imaging system of claim 22, wherein the looping sequence of images is a looping sequence of three-dimensional images.

28. The imaging system of claim 21, wherein the image display program further comprises instructions for displaying the at least one image with a delay relative to the event trigger.

29. The imaging system of claim 21, wherein the sequence of images comprises a sequence of fetal heart images.

30. A method for obtaining an event trigger for an event occurring in a region of interest, the method comprising the steps of:

accessing ultrasound trigger data from a trigger region;

analyzing the trigger data for a trigger characteristic; and

storing an event trigger based on the trigger characteristic.

31. The method of claim 30, where the trigger data comprises Doppler data, and wherein the step of analyzing comprises the step of high pass filtering the Doppler data.

32. The method of claim 30, wherein the step of analyzing comprises the step of averaging the trigger data.

33. The method of claim 30, wherein the step of analyzing comprises the step of averaging a high pass filtered component of the trigger data.

34. The method of claim 30, wherein the step of analyzing comprises the step of interpolating an additional event trigger.

35. The method of claim 30, where the step of analyzing comprises the step of determining a signal extreme from the trigger data.

36. The method of claim 30, wherein the step of analyzing comprises the steps of determining high pass filtered trigger data, and determining at least one of a signal maxima and signal minima of the high pass filtered trigger data.

37. The method of claim 30, wherein the region of interest is a fetal heart.

38. The method of claim 37, wherein the trigger region comprises fetal tissue.

39. A method for displaying an image, the method comprising:

accessing ultrasound trigger data from a trigger region;

analyzing the trigger data for a trigger characteristic;

storing an event trigger based on the trigger characteristic;

accessing the event trigger; and

displaying at least one image in a sequence of images in synchronism with the event trigger.

40. The method of claim 39, wherein the sequence of images is a looping sequence of images.

41. The method of claim 39, wherein the sequence of images is a sequences of fetal heart images.

42. The method of claim 39, wherein the trigger region comprises fetal tissue.

43. The method of claim 39, wherein the image step of accessing comprises the step of accessing a plurality of event triggers and wherein the step of displaying comprises the step of displaying a plurality of images in the sequence of images in synchronism with the event triggers.

44. The method of claim 39, wherein the at least one image is a three-dimensional image.

45. The method of claim 44, wherein the looping sequence of images is a looping sequence of three-dimensional images.

46. The method of claim 39, wherein the step of displaying comprises the step of displaying the at least one image with a delay relative to the event trigger.

47. An ultrasound imaging system comprising:

an ultrasound probe for obtaining ultrasound trigger data from a trigger region intersecting a region of interest;

a processor;

a memory coupled to the processor;

a trigger extraction program stored in the memory for execution by the processor, the trigger extraction program comprising instructions for accessing the ultrasound trigger data, analyzing the trigger data for a trigger characteristic, and storing an event trigger based on the trigger characteristic;

an image display program stored in the memory for execution by the processor, the image display program comprising instructions for accessing the event trigger and for displaying at least one image in a sequence of images in synchronism with the event trigger; and

a display for displaying the sequence of images.

48. The ultrasound imaging system of claim 47, further comprising a beamformer for defocusing ultrasound energy transmitted by the ultrasound probe to encompass the trigger region.

49. The ultrasound imaging system of claim 48, wherein the beamformer defocuses the ultrasound energy in the azimuth direction.

50. The ultrasound imaging system of claim 48, wherein the beamformer defocuses the ultrasound energy in the elevation direction.

51. The ultrasound imaging system of claim 47, wherein the region of interest is a fetal heart.

52. The ultrasound imaging system of claim 47, wherein the trigger region comprises fetal tissue.

53. The ultrasound imaging system of claim 47, wherein the trigger data comprises Doppler trigger data comprising a phase component, and wherein the instructions for analyzing the trigger data comprise instructions for:

high pass filtering the phase component to obtain filtered data;

averaging the filtered data to obtain averaged data;

determining a signal extreme of the averaged data to determine the event trigger.

54. The ultrasound imaging system of claim 53, further comprising the step of interpolating to obtain the event trigger.

55. The ultrasound imaging system of claim 47, wherein the instructions for analyzing the trigger data comprise instructions for determining a signal extreme from signal values determined by:

$s(t) = Im(mean(R1(r, theta, t)))$, where Im() represents an imaginary part of mean(R1(r, theta, t)), R1 is an imaginary part of autocorrelation of lag one, r represents depth, theta represents a steering angle, and t represents time.